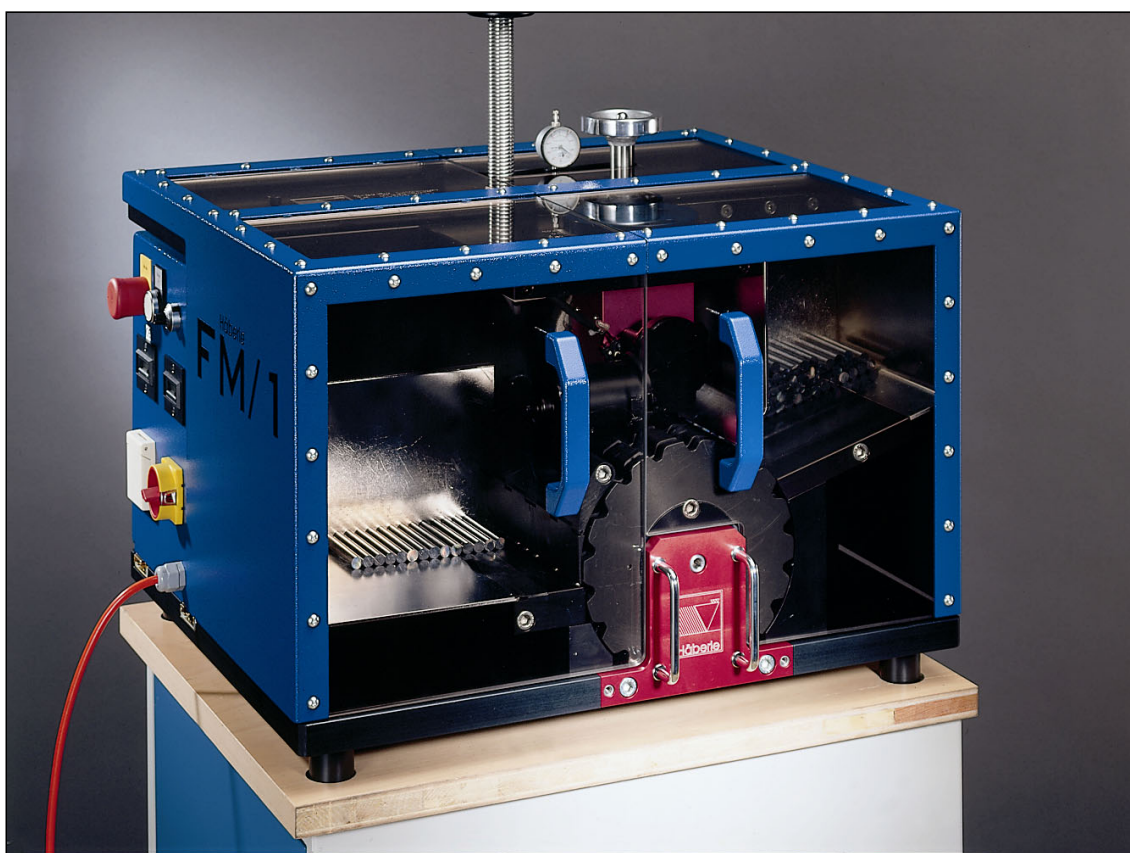




User Manual

Häberle FM/1

Chamfering grinder



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Subject to change without notice.

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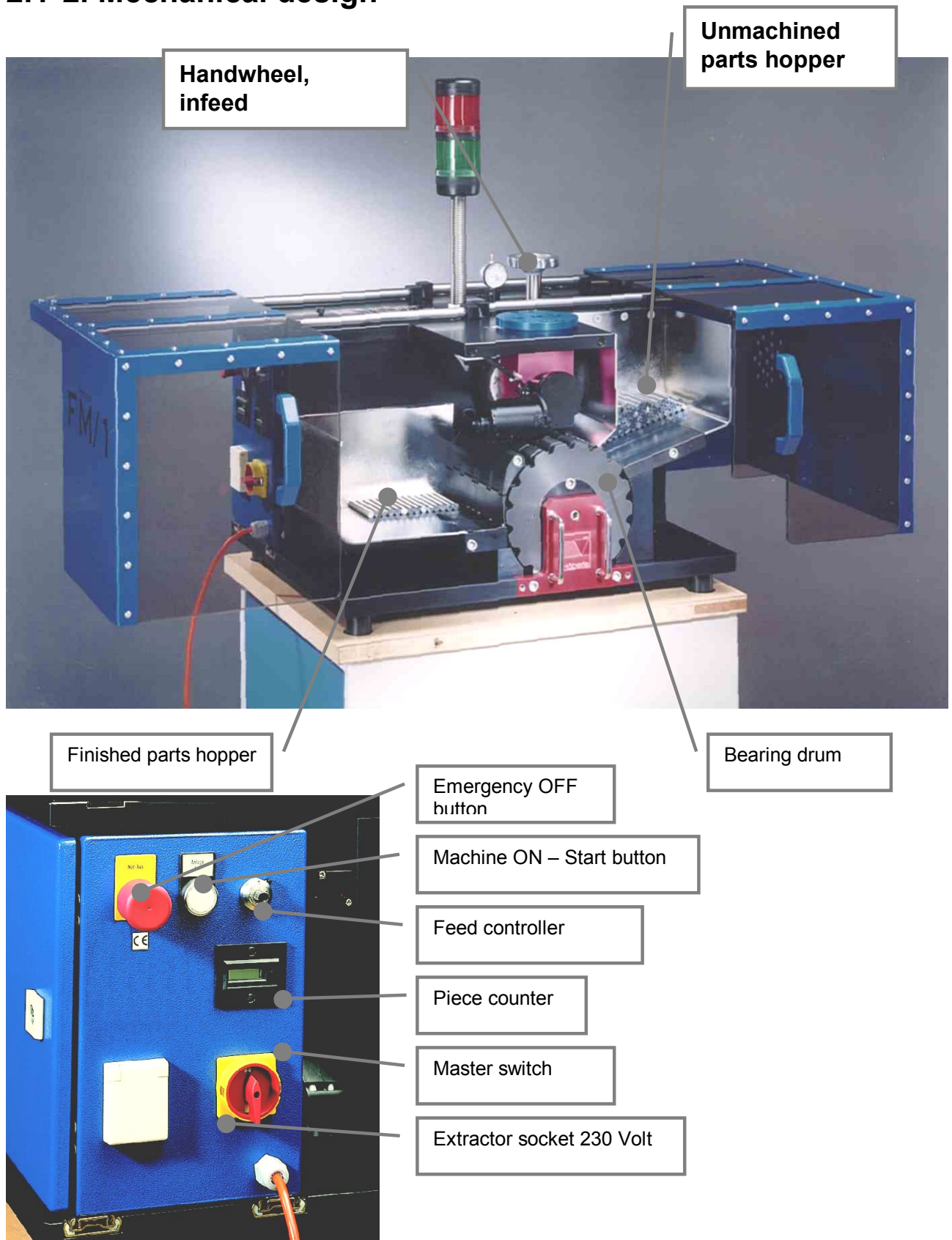
1 Product description

2 1. Intended use

The chamfering grinder type FM/1 is designed and built for machining the face ends of cylindrical workpieces. A chamfer is ground into the workpieces – round hard metal bars – on one side with the aid of a diamond-tipped grinding wheel in a dry grinding process. The chamfer angle can be set to 30° or 45°. Attention is explicitly drawn to the fact that only dry cylindrical workpieces can be machined. Slight shading may remain visible on the machined workpieces under certain circumstances. Attention is also drawn to the fact that an adequately dimensioned extractor system must be connected and constantly checked to ensure correct functioning.

A uniform chamfer can only be obtained if the ends of the rounds are plane.

2.1 2. Mechanical design



2.2 3. Functional description

The correctly positioned round bars are placed in the hopper for unmachined parts. Care must be taken to ensure that the ends to be machined rest against the rear wall of the hopper. The workpieces are separated by the corresponding bearing drum so that only one bar is inserted in each bearing vee. The workpieces are transferred to the machining process with a soft movement. The round bar is rotated by the pressure roller throughout the grinding process. The work sequence ends when the workpieces are deposited in the hopper for finished parts.

2.3 4. Technical data

Outside dimensions:	Width: 550 mm Depth: 570 mm Height: 500 mm
Weight:	125Kg
Power supply:	230 Volt; 50 Hz
Collecting bin:	Approx. 600 workpieces with dia. 6 mm
Infeed:	Mechanical, via handwheel
Chamfer truth of running:	< 0.1 mm when face end is plane
Chamfer angle:	30° and 45°
Cycle time:	Infinitely variable from approx. 0.2 to 20 seconds
Piece counter:	7-digit, can be reset to count the batch size
Grinding wheel:	1A1; 125 x 20 x 20 (cup size D58 x 5mm)
Grinding motor:	0.25 kW; 2860 rpm; 230 Volt
Grinding spindle:	4400 rpm
Grinding range:	D 3 – 20 mm (depending on drum); max. 38 (32) – 195 mm long
Extractor connection:	Inside diameter 36 mm; outside diameter 40 mm
Friction clutch:	30 Nm set

3 EC Declaration of conformity

in accordance with Annex II A of EC Directive 89/392/EEC on machine safety

The manufacturer:

Häberle
Feinmechanik CNC-Technik OHG
Hinter Alenberg 16
89150 Laichingen

herewith declares that the following machine:

Häberle chamfering grinder type FM/1

complies with the safety and health requirements
of the following EC Directives:

EC Directive on machine safety

89/392/EEC

Applied harmonized standards:

(89/EEC) as amended by 91/368/EEC	EC Directive on machine safety
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Applied national standards and technical specifications:

EN 60335, EN 600065	
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The present Declaration of Conformity is rendered invalid by all engineering changes affecting the technical data and intended use of the machine as stated in the User Manual, i.e. significantly changing the nature of the machine.

Laichingen, 05.02.2001



Gerhard Häberle, Managing Director

4 General safety instructions

4.1 1. Owner's duty to exercise care

The chamfering grinder type FM/1 has been designed and built on the basis of a hazard analysis and with careful selection of the harmonized standards to be observed, as well as other technical specifications. The machine consequently reflects the state of the art and guarantees maximum safety.

However, this safety can only be ensured in everyday operation if all the requisite precautions necessary for such safety are also taken. The machine's owner is responsible for planning these precautions and verifying their implementation.

In particular, the owner must ensure that:

- the machine is only used for its intended purpose (refer to the chapter Product description);
- the machine is only operated when in perfect working order and that its safety mechanisms in particular are regularly checked to ensure their serviceability;
- the required personal protective equipment is available for and used by operating, maintenance and repair personnel;
- the User Manual is always complete, in good legible condition and immediately available at the machine's point of use;
- the machine is only operated, serviced and repaired by appropriately qualified, authorized personnel;
- such personnel is regularly instructed on all relevant aspects of occupational safety and environmental protection and is fully familiar with the User Manual and particularly the safety instructions contained in the Manual;
- all safety symbols and warnings affixed to the machine remain fully legible and are not removed.

4.2 2. Explanation of the safety symbols used

The following safety symbols are used in this Manual. The primary purpose of these symbols is to draw the reader's attention to the safety instructions accompanying the symbol.

This symbol draws attention to danger to life and limb.



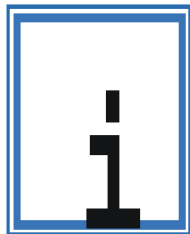
DANGER

This symbol draws attention to dangers for the machine, materials or the environment.



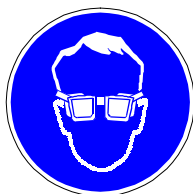
Important

This symbol draws attention to information explaining the machine's operating processes.



Note

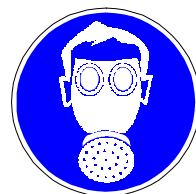
These symbols draw attention to danger to life and limb.



Wear goggles



Wear ear defenders



Use respiratory protection

4.3 3. Basic safety precautions

Information must always be available:

This User Manual must be kept with the machine. Care must be taken to ensure that everyone working on or with the machine can refer to the User Manual at any time. Operating instructions as required by the German law on safety at work and the regulations concerning the use of equipment must also be provided to supplement the User Manual.

All safety and operating signs on the machine must always be kept in good, clearly legible condition. Damaged or illegible signs must be replaced immediately.

4.4 4. Requirements to be met by the operating personnel

The machine may only be operated by persons who have been specially trained, instructed and authorized. These persons must have read and understood the User Manual and follow its instructions. The powers of the respective operators must be clearly defined.

Trainees may only work on the machine under the supervision of an experienced person. Successful completion of the training should be documented and confirmed in writing.

Control and safety mechanisms may only be operated by duly instructed persons.

All persons working on or with the machine must sign a form confirming that they have read and understood the User Manual.

Safety precautions

Before starting:

Ensure that you are sufficiently familiar with

- the machine's operating and control elements,
- the machine's equipment,
- the machine's principle of operation,
- the machine's immediate surroundings,
- the machine's safety mechanisms, and
- the action to be taken in an emergency.

The following steps must always be taken before starting the machine:

- Check and ensure that all safety mechanisms are in place and function correctly.
- Examine the machine for visible damage; any defects found must immediately be repaired or reported to the supervisory staff – the machine may only be operated when in perfect working order.
- Check and ensure that only authorized persons remain within the working range of the machine and that no-one is endangered by the machine as it starts up.
- Remove all objects and other materials which are not required for operation of the machine from its working area.

Safety precautions

During normal operation:

None of the safety mechanisms may be removed or deactivated during operation of the machine.

The operating personnel must ensure that unauthorized persons do not remain within the working range of the machine.

After switching off the machine, wait until all moving parts have come to a complete halt and the function indicators have gone out before opening the machine doors.

The following checks must be performed at least once per day:

- Examine the machine for externally visible damage.
- Check correct functioning of all safety mechanisms.

Safety precautions

During maintenance work:

The maintenance work specified in the User Manual – adjustment, cleaning, lubrication, maintenance, inspection – must be carried out regularly at the specified intervals.

The following points must be noted before starting any maintenance work:

- Switch off the central power supply via the master switch, lock the master switch and affix a warning to prevent accidental restarting.
- Ensure that all machine parts have cooled to room temperature.
- Replace all defective machine parts without delay.
- Ensure that only original spare parts are used.

The following points must be noted upon completion of the maintenance work and before restarting the machine:

- Check again that all screw connections which have been undone are now secure.
- Check that all guards, covers, machine doors which were removed have been correctly refitted.
- Check that all tools, materials and other equipment used have been removed from the working area.
- Clean the working area.
- Check that all the machine's safety mechanisms once again function correctly.

Safety precautions

When working on electrical equipment:

Work on the machine's electrical equipment may only be undertaken by duly trained and qualified electricians.

Electrical equipment must be checked regularly: loose connections must be resecured – damaged wires or cables must be replaced immediately – ...

The control cabinet must remain closed at all times. It may only be opened by duly authorized personnel with a key.

A second person must always be in attendance to switch off the master switch in an emergency when working on live machine parts or cables.

Electrical equipment must never be cleaned with water or similar media.

Safety precautions

Changes to the machine:

Unauthorized changes to the machine are prohibited for safety reasons.

All planned changes must be approved by Messrs. Häberle in writing.

Ensure that only original spare parts / original wear parts / original accessories are used. These parts are specially designed and built for use with the machine. Parts purchased from other manufacturers cannot be guaranteed to have been designed and built to cope with the stresses imposed and ensure safety.

Parts and special equipment not supplied by Häberle are not approved by Häberle for use with the machine.

Safety precautions

In the event of a fire:

If a fire breaks out, the machine must immediately be switched off via the master switch.

Special fire-fighting precautions must be taken in conjunction with:

- Processing materials - ...
- Fuels - ...
- Electrical wiring

4.5 5. Special hazards

Mechanical hazards:

Never reach into the working process while the machine is running – danger of crushing, shearing, cutting, being caught, trapped, drawn into the machine, ...

When working on the drum, beware of hazards due to

- Crushing
- Shearing
- Winding
- Being caught

Electrical hazards:

Beware of electrical hazards

- through direct contact with live parts or parts which have become live due to a fault condition,
- due to electrostatic charges,
- due to high voltages,
- due to short-circuits / overloads which could also result in molten parts being catapulted out of the machine.

Electrical equipment – such as pressure roller motor, drum motor, grinding wheel motor, signal lamp, piece counter sensor and control cabinet – must never be cleaned with water or similar media.

Thermal hazards:

When working on the motors, beware of

- burns due to contact with the housing.

Noise:

The continuous sound pressure level at the operator's workplace equals approx. 65 dB(A).

Depending on local conditions, higher sound pressure levels may also arise and lead to deafness, loss of balance or impaired concentration. Personnel must be provided with appropriate personal protective equipment in such cases.

Note that verbal communication and the perception of acoustic signals, such as the sound of a vehicle horn, etc., are reduced when the machine is running.

Note the regulations in the operating instructions concerning noise at the workplace and make use of the specified personal protective equipment.

Hazards due to materials and other substances:

Dangerous clouds of dust may escape during operation of the machine. Adequate dust extraction must be ensured.

The substances used to clean the machine – solvents, cleaning agents – must be handled and disposed of correctly. Note the instructions on the relevant containers.

Hazards due to unexpected malfunctions:

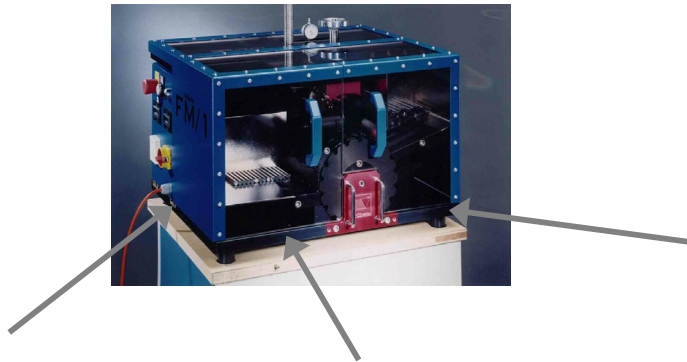
Unexpected malfunctions may arise due to

- failure or a fault in the control system,
- restoration of the power supply following a break,
- external influences acting on the electrical equipment,
- any software errors which have not yet been detected and corrected.

5 Transport

The following points must be observed without fail in order to avoid damage to the machine and potentially fatal injuries when transporting the machine.

- The machine may only be transported by specially qualified personnel in compliance with the safety instructions.
- The machine may only be lifted with its baseplate.



- Refer also to the chapter "General safety instructions".

5.1 1. Dimensions and weight

Outside dimensions: Width: 550 mm Depth: 570 mm Height: 500 mm
Weight: 125 kg

6 Installation

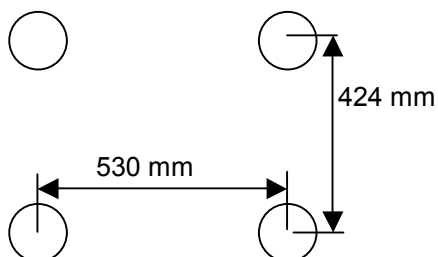
The following points must be observed without fail in order to avoid damage to the machine and potentially fatal injuries when installing the machine.

- Installation and assembly of the machine may only be undertaken by specially qualified personnel in compliance with the safety instructions.
- The machine must be examined for signs of damage suffered in transit before it is installed.
- Particular attention must be paid to ensuring the stability of the machine.
- Refer also to the chapter "General safety instructions".

6.1 1. Physical requirements for installation

Ambient temperature must be not less than +15 °C and not more than +45 °C.
Wait until the machine has adjusted to the ambient temperature before starting it.

The four machine feet must be embedded in the floor to a depth of at least 8 mm and a diameter of 40 mm.
Refer to the diagram below.



6.2 2. Information on disposal or return of packaging materials

If the machine has been delivered in a wooden crate, you can either:
return the packaging to us carriage-paid, it will then be credited to your account if it can be reused, or
dispose of the crate at your own expense.

7 Start-up

The following points must be observed without fail in order to avoid damage to the machine and potentially fatal injuries when commissioning the machine:

- The machine may only be commissioned by specially qualified personnel in compliance with the safety instructions.
- Wait until the machine has adjusted to the ambient temperature.
- Before starting for the first time, check that all tools and other parts have been removed from the machine.
- Activate all safety mechanisms and Emergency OFF circuits before starting the machine.
- Check the direction of rotation of the motor before starting the machine.
- Refer also to the chapter "General safety instructions".

7.1 1. Connect supply and disposal lines

The machine operates on 230 Volt 50 Hz.

Plug the earthed connector supplied into a socket outlet connected to the power supply.

Plug the extractor supplied into the socket outlet on the control cabinet. Note that the socket outlet only draws power when the machine is running (System ON).

Slip the suction hose of the extractor over the extractor pipe (rear of machine).

If a different extractor is used, ensure that its suction capacity is sufficiently high.

The extraction performance must be checked daily, regardless of the extractor type used.

7.2 2. Basic settings

Refer to the chapter:

Description of operating elements

Adjustment and setup

7.3 3. Checks before starting for the first time

Mains connector plugged into a socket outlet connected to the power supply
Emergency OFF switch unlocked
Tooling complete (drum change)
Grinding wheel infeed
Machine doors closed
Extractor hose connected
Master switch on
Feed potentiometer set to approx. 20 to 25

7.4 4. Starting the machine for the first time

Machine doors closed
Master switch on
Emergency OFF switch unlocked
Feed potentiometer set to approx. 20 to 25
System ON button actuated
Grinding wheel running
Pressure roller running
Drum running
Extractor running

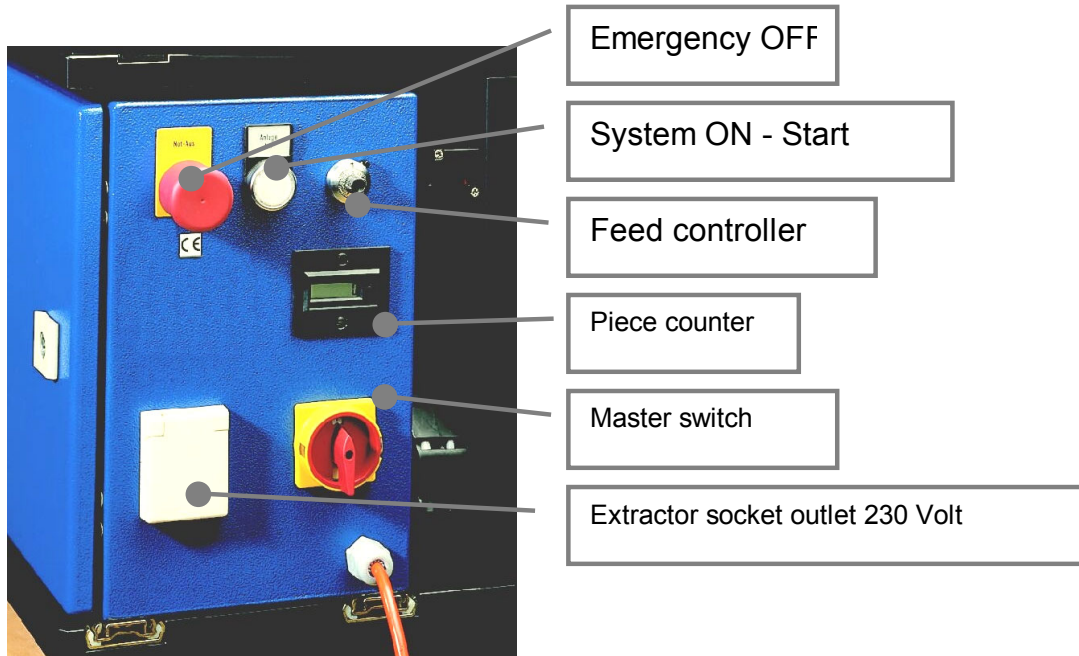
8 Operation

The following safety instructions must be observed without fail when operating the machine – this will help to avoid potentially fatal injuries to personnel and damage to the machine and other property.

- Check correct functioning of the following units before switching on the machine: guards, Emergency OFF switch, machine doors.
- The following points must be checked at least once per day: power supply connections / machine lamp / System ON indicator / correct working sequence of the machine / extractor running and adequate extraction capacity.
- Only the operating personnel may remain near the machine during operation.
- The machine must be locked to prevent unauthorized restarting by third parties following an Emergency OFF.
- If the machine is to remain switched off and unattended for a prolonged period of time, the master switch must be secured with a lock to prevent unauthorized restarting.
- The machine may only be used for its intended purpose.
- Refer also to the chapter "General safety instructions".

8.1 1. Description of operating elements

The Emergency OFF circuit is tripped if the machine doors are opened during operation of the machine.

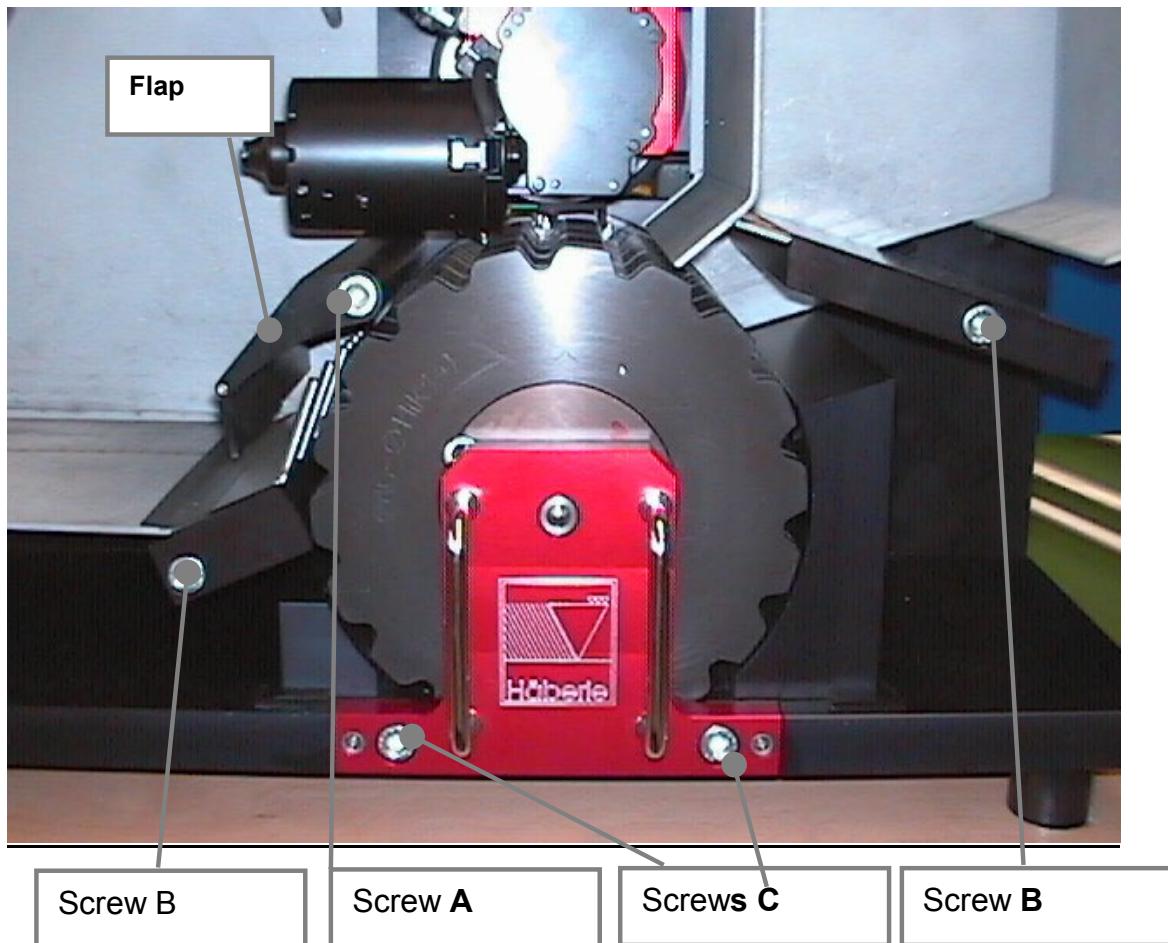


8.2 2. Adjustment and setup

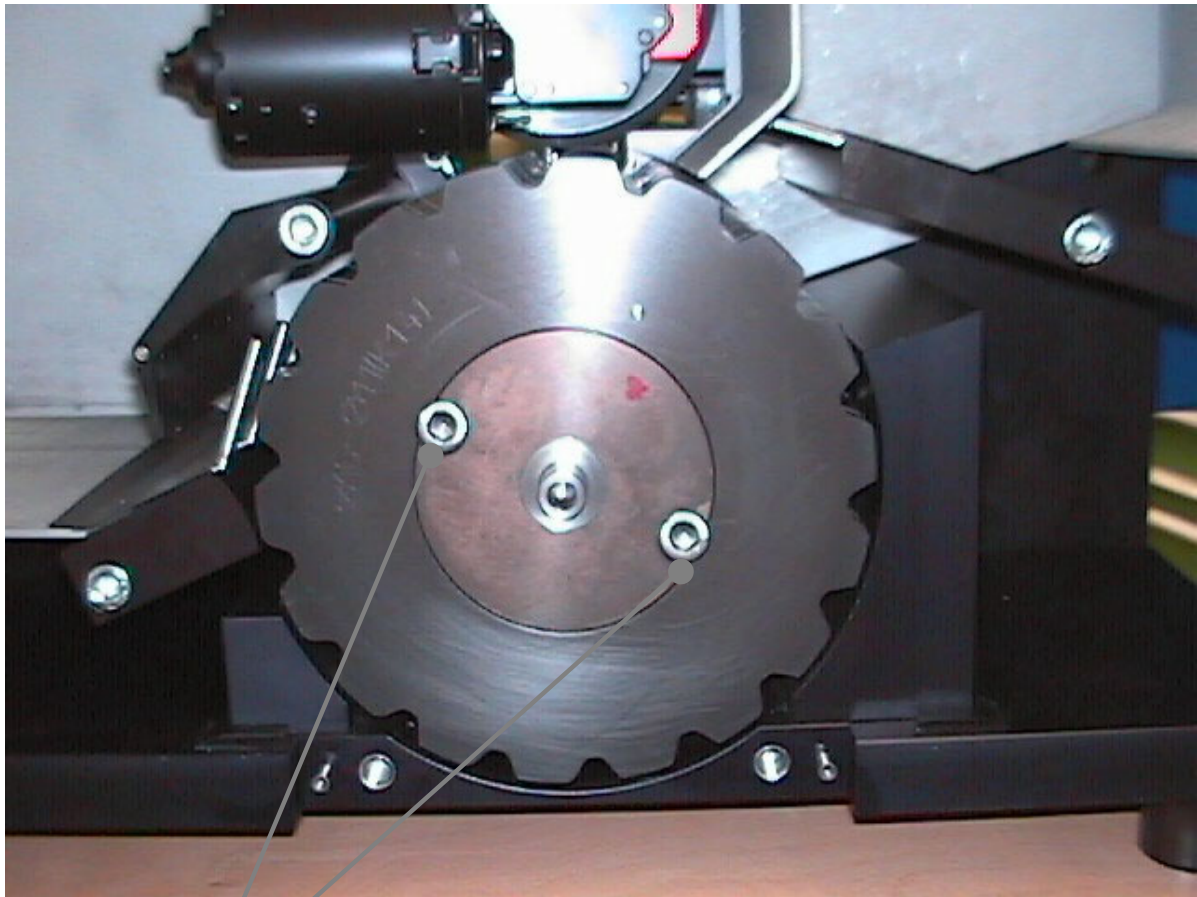
8.2.1 Changing the bearing drum

Proceed as follows to change the bearing drum:

- Switch off the master switch.
- Open the machine doors.



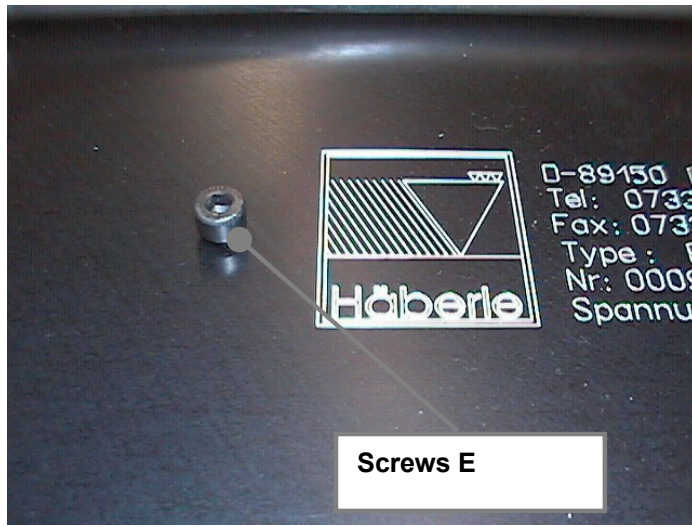
- Undo screw A, raise the flap and lightly retighten screw A.
- Undo screws B, raise both rakes and retighten screws B.
- Remove screws C, grasp the handles on the red bearing block and pull it out.



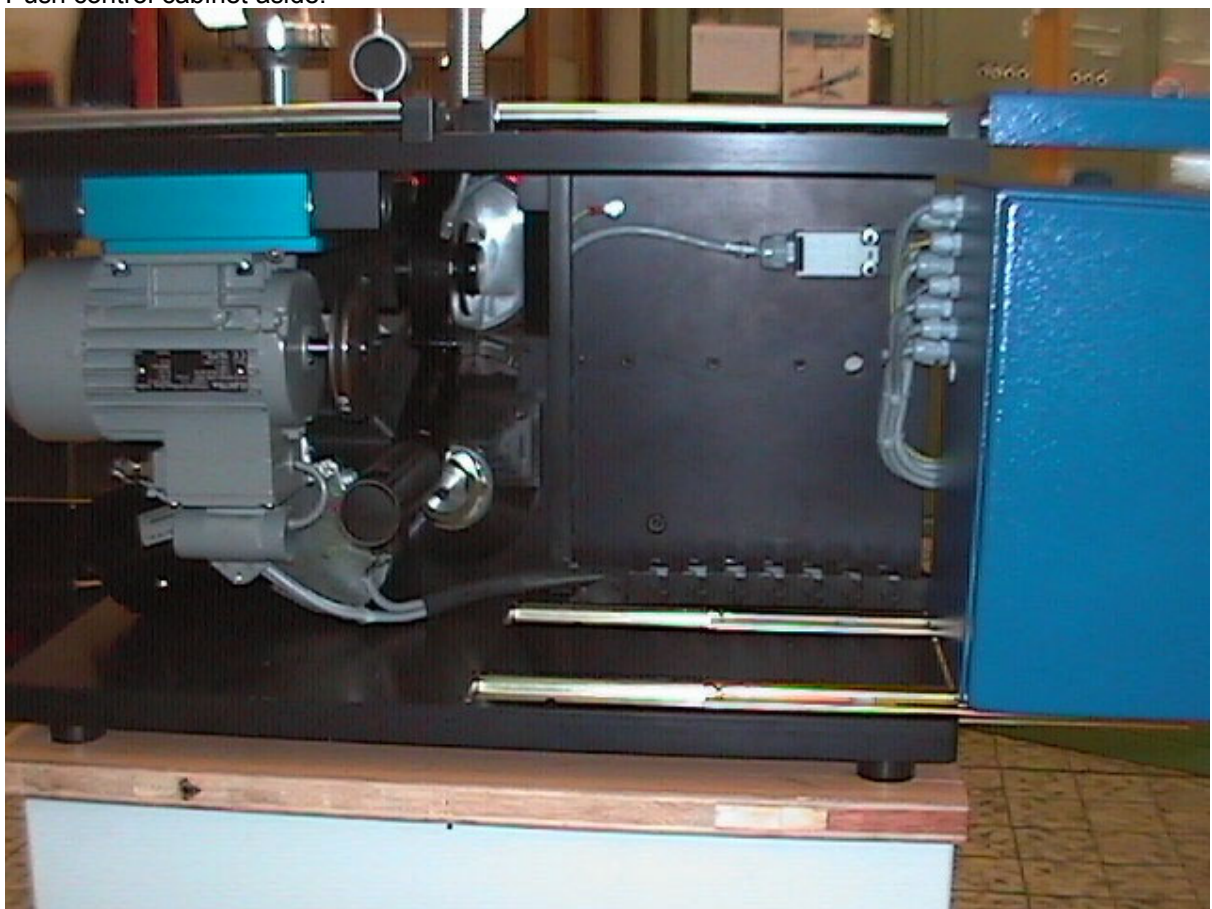
Screws D

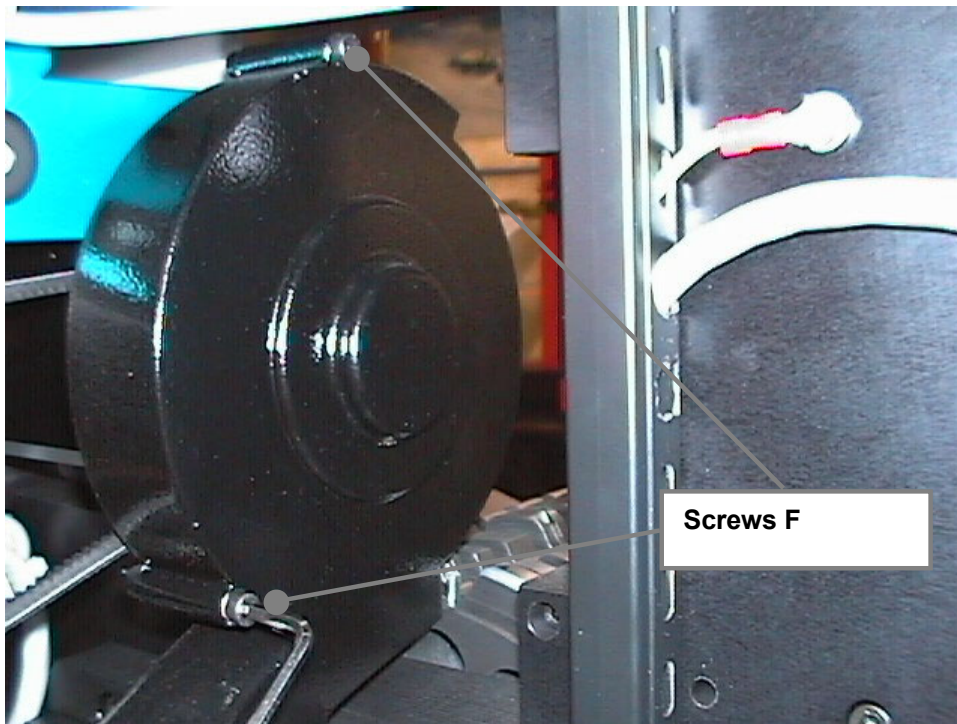
- Remove screws D and pull the bearing drum off the drum mount.
- Clean the drum mount with a rag to remove any dirt.
- Slip the required bearing drum onto the drum mount.
- Refit screws D.
- Slide the read bearing block into position.
- Screw in the screws C.
- Undo screws A B C.
- Swing the rakes and the flap down again.
- Tighten the screws A B C.
- Switch on the master switch.

8.2.2 Fitting the grinding wheel



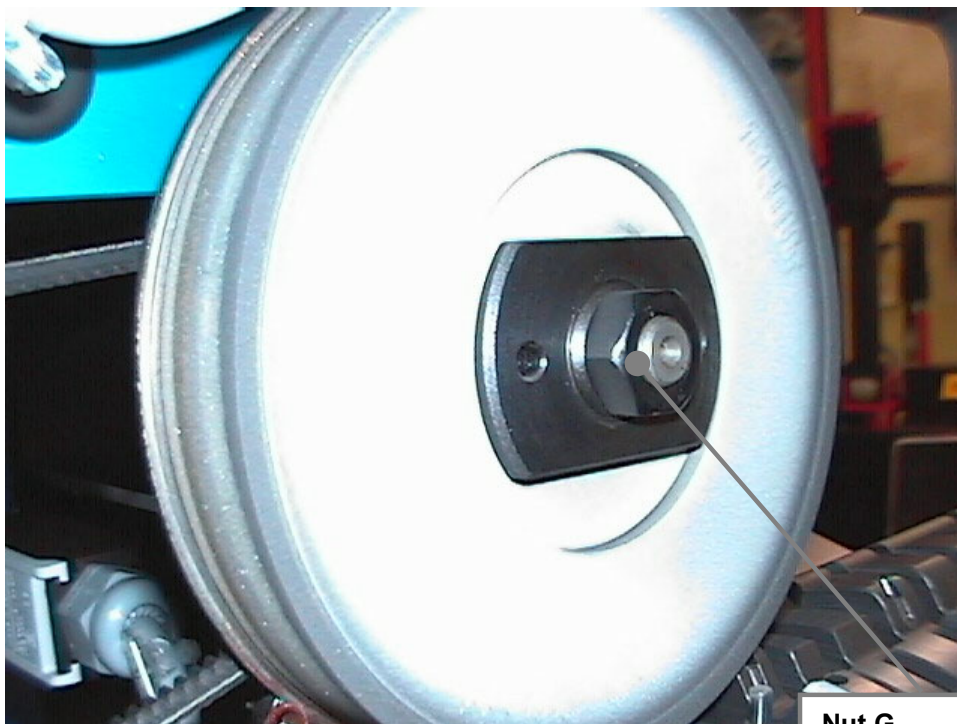
Open the doors.
Undo screw E (top of machine).
Push control cabinet aside.





Remove screws F.

Remove the wheel guard.



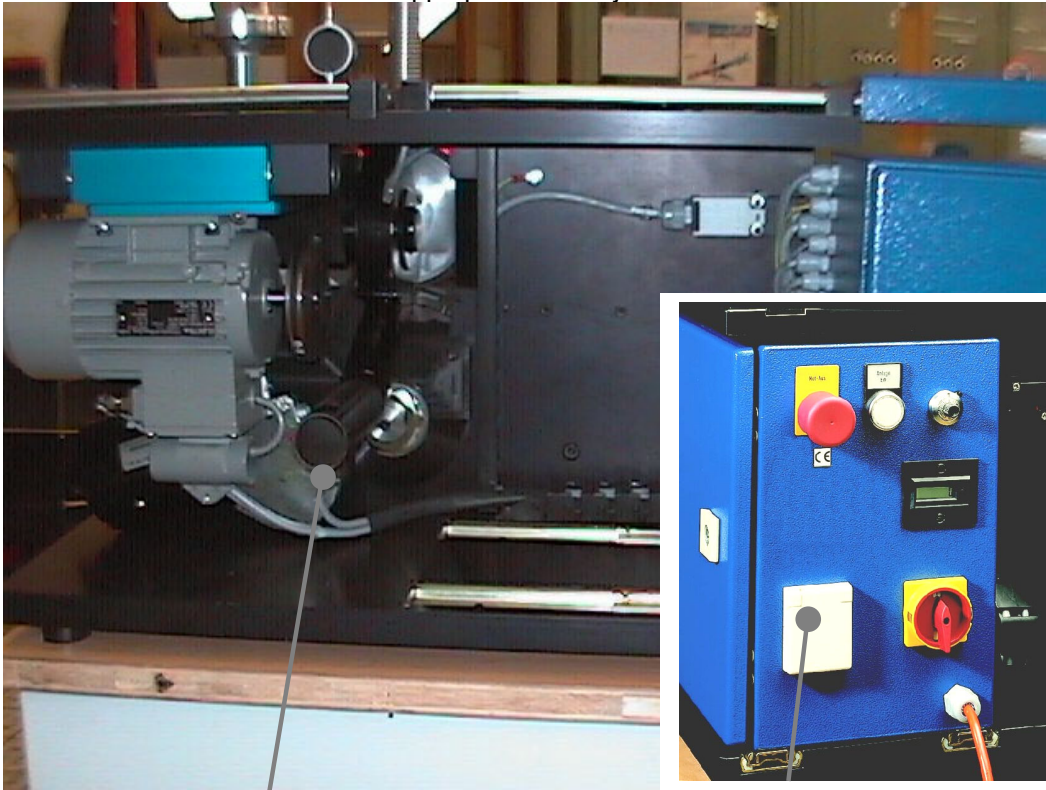
Remove nut G and pull off the grinding wheel.

Fit the new grinding wheel and
SECURE TIGHTLY with nut G.

Refit the wheel guard and secure tightly with screws F. Move the control cabinet back into position and tighten screw E.

8.2.3 Connecting the extractor

Ensure that the extractor used is appropriate to the job.

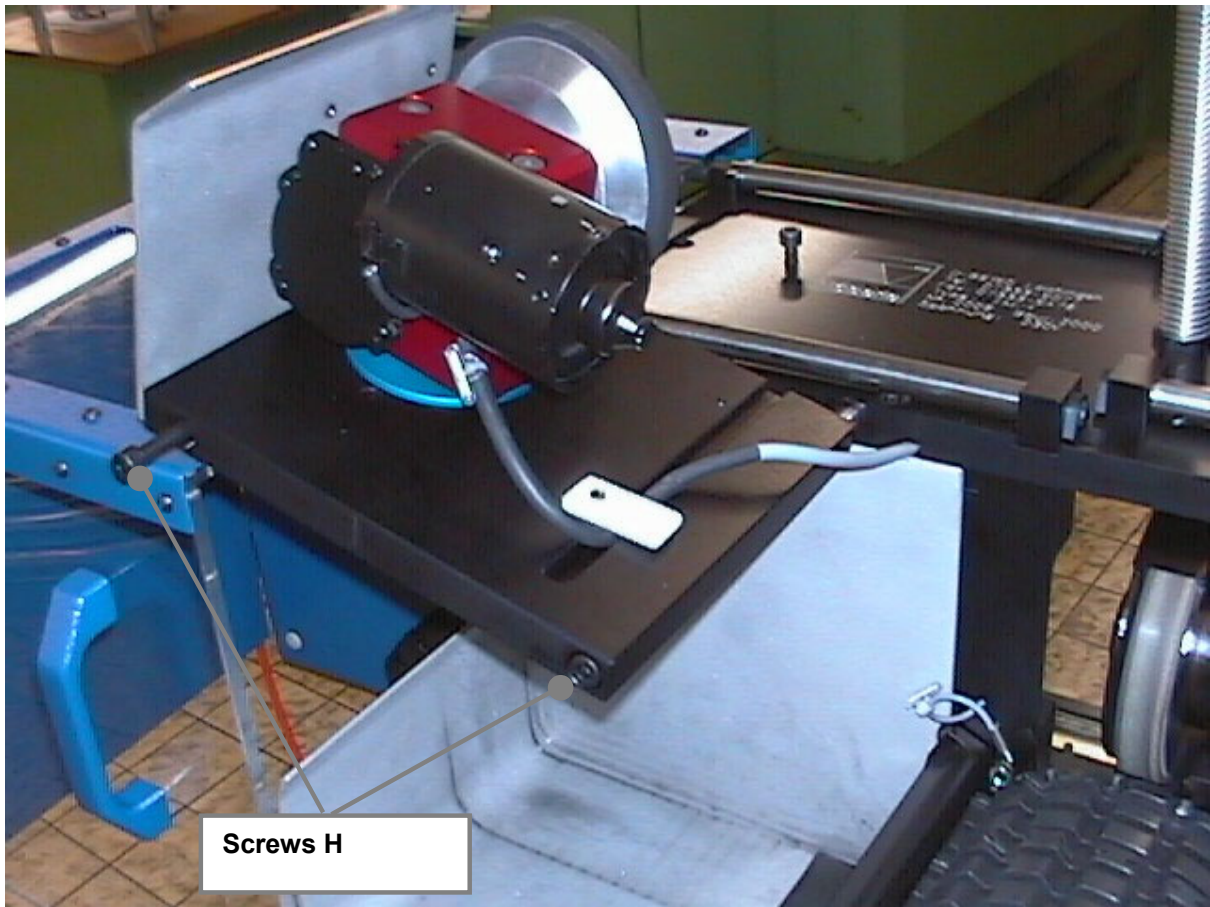


HOSE CONNECTION

Extractor socket outlet 230 Volt

The 230 V extractor socket outlet switches on and off automatically in automatic operation.

8.2.4 Fitting the rubber wheel

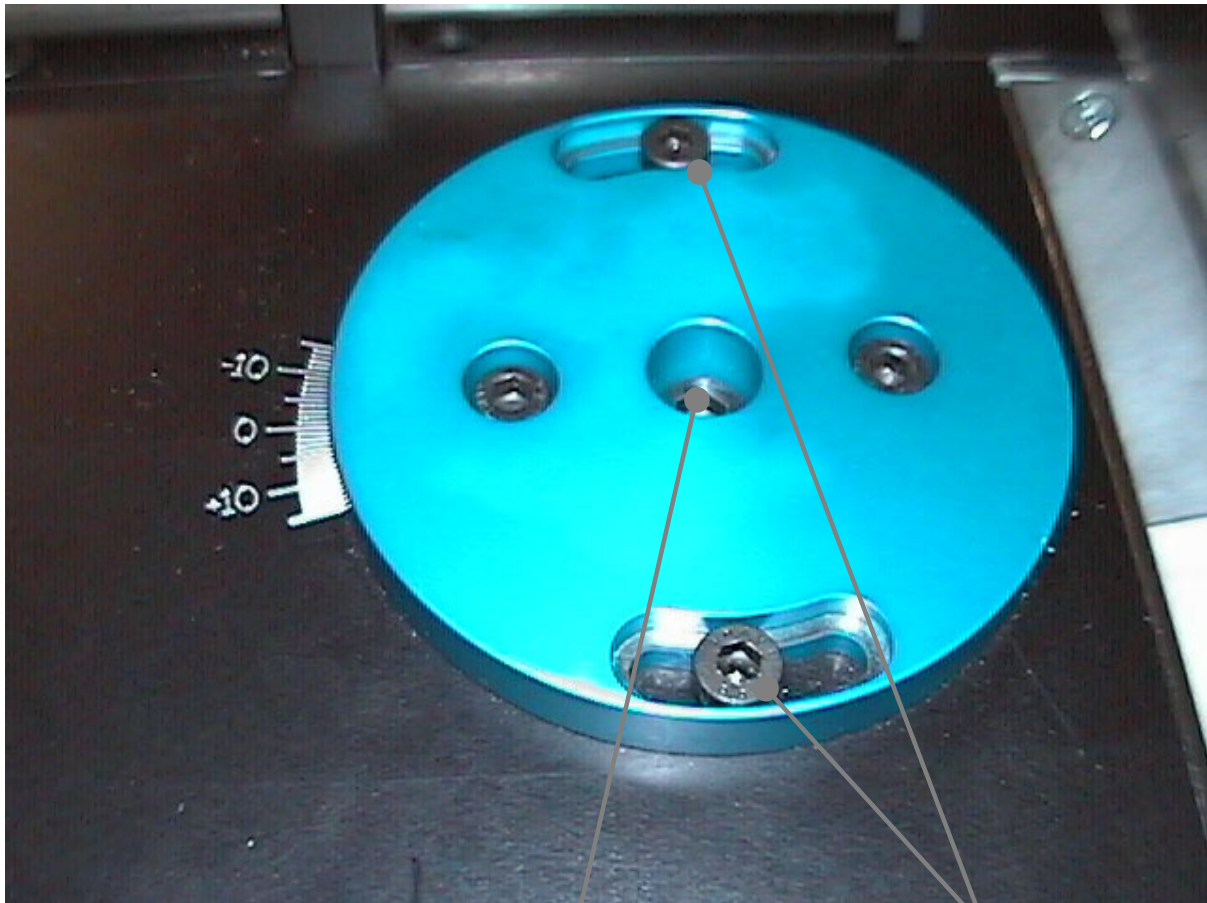


Remove screws H / swing top plate outwards.



Remove screws I and change the rubber wheel.

8.2.5 Setting the contact pressure / contact angle



To set the contact angle :

Undo screws L.

Turn the blue bearing plate.

Clamp with screws L.

Grinding range D 3-6 mm angle approx. 2-4°

D 6-20 mm angle approx. 4-6°

depending on the size of chamfer and the grinding speed.

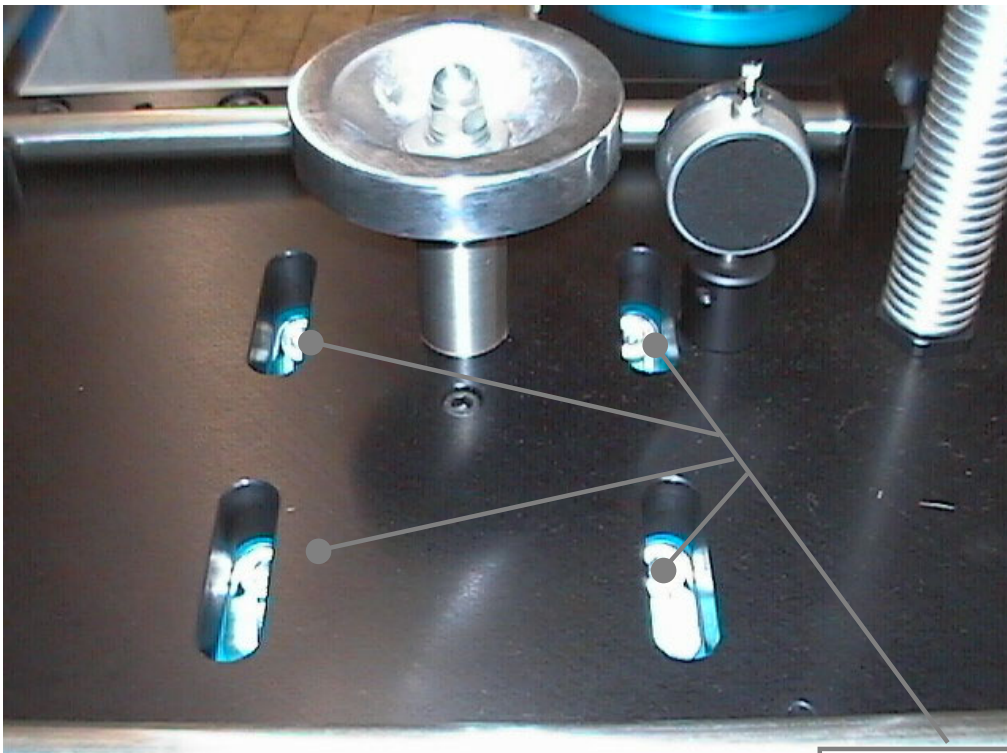
The height of the pressure roller can be adjusted via screw K:

- D3 approx. 0.5 mm above the bearing drum

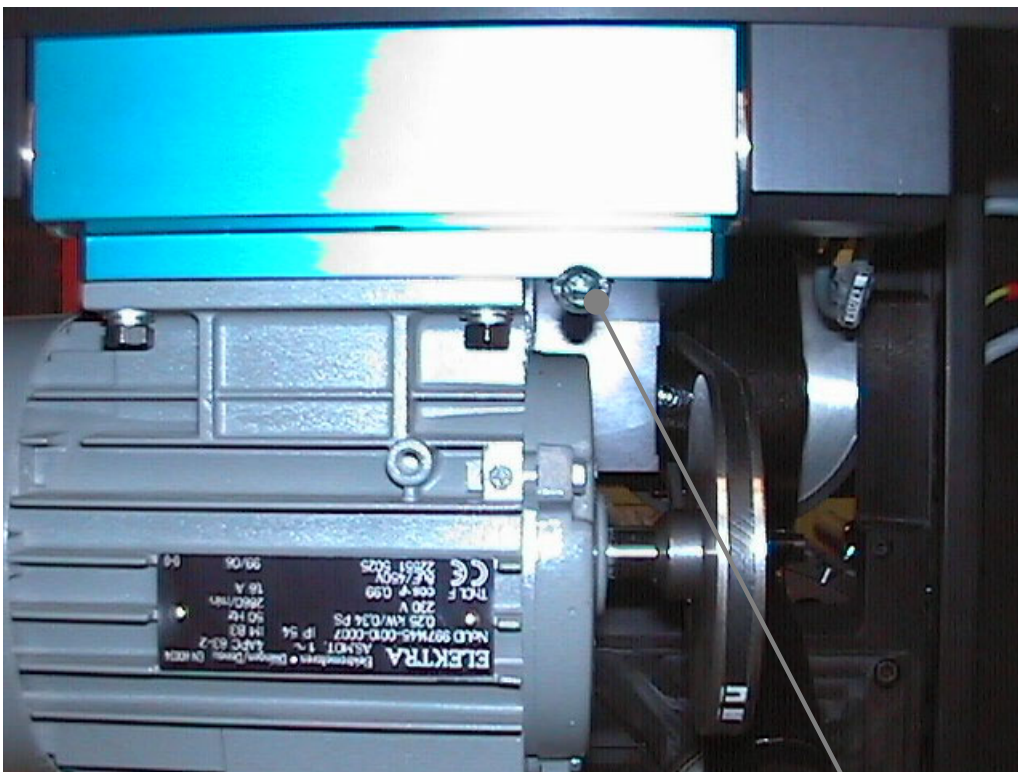
- Over D6 at roughly the same height as the bearing drum

These are approximate values and must be varied in accordance with the chamfer size, chamfer angle and grinding speed. Important: The pressure roller must not rub against the bearing drum!

8.2.6 Setting the chamfer angle 30° / 45°

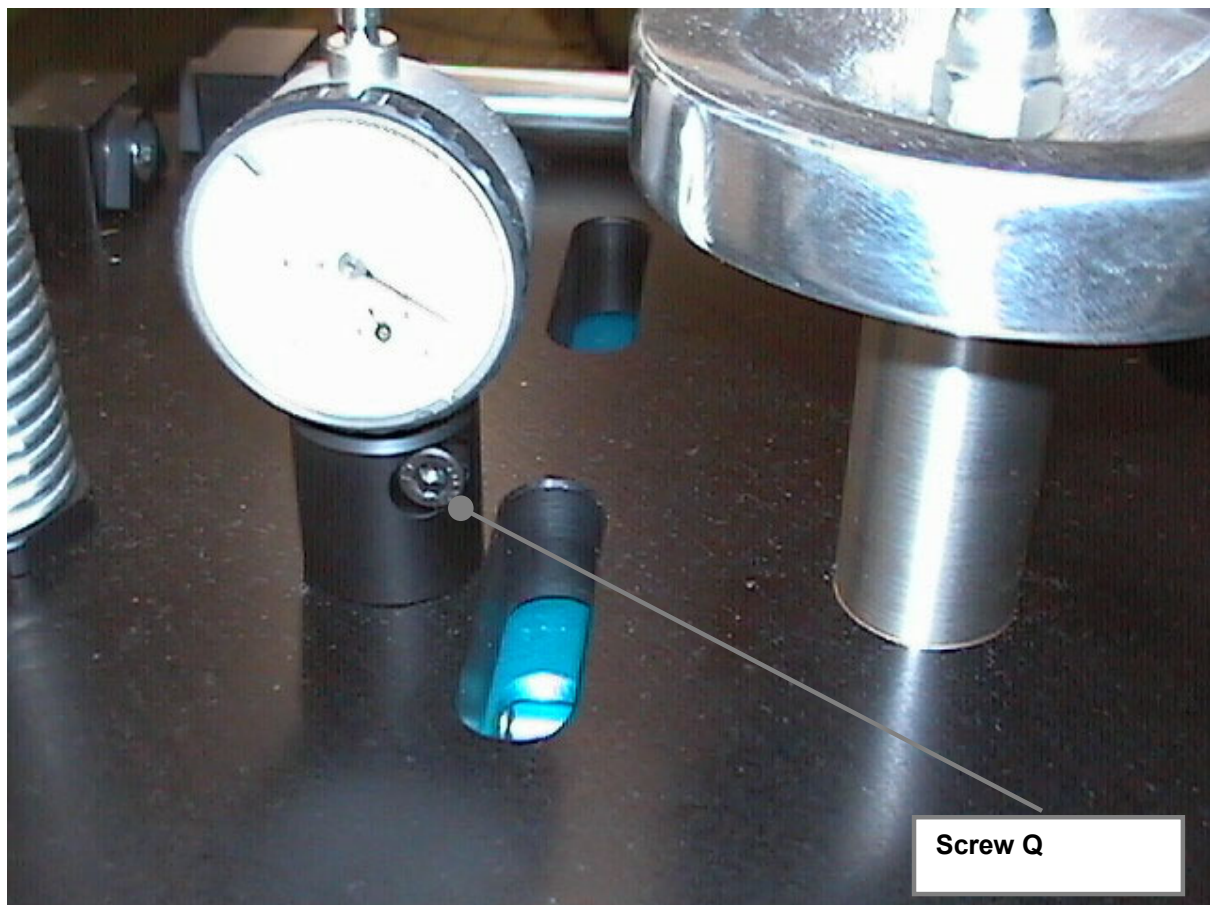
**Screws M**

Undo the four screws M (approx. 1/4 turn).

**Screws P**

Set the chamfer angle via screw P:
30° Motor raised completely
45° Motor lowered completely
Retighten screws M.

8.2.7 Zeroing the dial gauge



The height of the dial gauge can be adjusted by undoing screw Q to set the zero position for the infeed. This must be checked and if necessary re-adjusted after the following processes:

- Change of grinding wheel
- Commissioning
- Change of angle
- Work with diameters other than the nominal diameter of the bearing drum
- Worn grinding wheel

8.3 3. Operation

Infeed:

The handwheel must be turned clockwise to obtain a larger chamfer. The chamfer size can be read off on the dial gauge. The red figures on the dial are decisive.

9 1. Troubleshooting

The following safety instructions must be observed without fail when remedying faults in the machine – this will help to avoid potentially fatal injuries to personnel and damage to the machine and other property. Work on the machine's electrical equipment may only be undertaken by duly trained and qualified electricians.

The machine's control program may only be modified by personnel from the companies Häberle Maschinenbau or Bächle Schaltschrankbau.

Troubleshooting procedures must be carried out in precisely the order specified.

Note the special regulations (e.g. earthing, ...) for work on electrostatically charged components.

- Refer also to the chapter "General safety instructions".

102. Possible faults

10.1 Drum does not turn

- A. Feed controller (potentiometer) set to more than 0
- B. Ensure that the drum is not jammed: remove all workpieces and remove the drum.
- C. Do the gear wheels on the friction clutch turn when the system is switched ON? Look from the rear of the machine towards the friction clutch.
- D. Check the friction clutch: turn with a torque wrench (8 mm Allen key) on the front of the drum. Approx. 30 Nm are preset.

10.2 Pressure roller motor does not turn

- A. Engage miniature circuit-breaker.
- B. Check fuse in transformer (address T1)
- C. Have motor checked for short-circuits (may only be done by an electrician)

10.3 Workpiece jammed at baffle plate

- A. Slide plate upwards in oblong holes.

10.4 Workpiece jammed at discharge flap

- A. Move discharge flap further away via the eccentric shaft. Undo the screw for this purpose.

10.5 Irregular chamfer

- A. Face end of round bar must be plane.
- B. Move pressure roller further down so that workpiece rotates sooner.
- C. Replace the grinding wheel.

10.6 Round bars do not turn

- A. Only dry workpieces can be machined. Dry the round bars before machining.
- B. Move pressure roller down so that the workpiece rotates.
- C. Replace the pressure roller.
- D. Replace the locating pins.

10.7 Locating pins worn

- A. The locating pins can be driven out with a drift. It may be possible to turn worn locating pins through 90° and refit them in the drum so that a set of locating pins can be used four times.

11 Maintenance

The following special hazards must be expected during maintenance of the machine:

- The machine may suffer serious damage if the wrong spare or wear parts are fitted.
- Inadvertent activation of power sources can cause serious physical injury and damage to the machine.
- Beware of injury on exposed sharp-edged machine parts.
- Beware of burns due to contact with the motor enclosures.
- Incorrectly routed cables (e.g. excessively small bending radius) can smouldering fires or cable fires.
- Electronic components may be damaged by electrostatic discharges.
- The motor will turn in the wrong direction if connections are confused – this can cause serious damage to the machine.
- Electrical / electronic components may be damaged or destroyed if connections are wired incorrectly.
- Serious injuries and damage to the machine may result if screws tightened down with the wrong torque.
- Higher risk of injury due to crushing / shearing / being trapped in the machine during unprotected manual operation.

11.1 1. Cleaning and lubrication

- A. The bearing drums must be thoroughly cleaned after eight hours of operation (e.g. in an ultrasonic bath).
- B. Grinding dust must be wiped off the machine with a cloth several times daily. Particular attention must be paid to the bearing points of the drum mount.

Refer to the chapter Disposal in this context.

11.2 2. Inspections and preventive maintenance

It is advisable to keep the following wear parts in stock:

- A. Pressure roller
- B. Grinding wheel
- C. Drum locating pins

The drum locating pins are worn when the round bars rest on the body of the drum. The locating pins can be driven out with a drift. It may be possible to turn worn locating pins through 90° and refit them in the drum so that a set of locating pins can be used four times.

11.3 3. Repairs

11.3.1 Replacing the pressure roller motor:

Disconnect the machine from the power supply.
Swing the movable top plate upwards.
Disconnect two motor leads from the lamp-wire connector.
Remove the pressure roller.
Remove the three hexagon socket head screws securing the motor.
Carefully pull off the motor with angular gearing. Ensure that the wedge spring is not lost in the process.
The motor is installed and connected in the reverse order of steps.

When all repairs have been completed, check the direction of rotation of the motor. If it turns in the wrong direction, the two motor leads must be reconnected on the lamp-wire connector.

12 Shutdown

The following safety instructions must be observed without fail when shutting down the machine – this will help to avoid potentially fatal injuries and damage to property or the environment:

- Machine shutdown may only be carried out by duly authorized skilled personnel.
- The machine may only be lifted by means of the handles provided.
- Refer also to the chapter "Transport".
- Refer also to the chapter "General safety instructions".

12.1 1. Temporary shutdown

Disconnect the power supply.
Secure the master switch with a lock.
Remove the grinding wheel from the grinding spindle.
Grinding wheel infeed raised completely.
Set angle adjustment to 45°.
Remove the bearing drum.
Fold the right and left rakes down as for the working process.
Turn the pressure roller down completely to relieve the springs.
Close the machine doors and secure them with cable ties or a wire through the handles to prevent them opening inadvertently.

13 Warranty

The following warranty is granted to purchasers of our type FM/1 chamfering grinder in addition to the statutory rights as set out in the following terms.

13.1 1. Scope of warranty

- A. The warranty covers the machine supplied with all its parts. Any parts which are shown to be defective due to manufacturing and/or material defects, despite correct operation in accordance with the User Manual, shall be replaced free of charge. Manuals and such wear parts as the grinding wheel, pressure roller, drum, locating and stop pins of the drums, etc. are excluded from the warranty.
- B. Cost of material and labour will be borne by us, but not the cost of shipment to the service centre.
- C. Replaced parts become our property..

13.2 2. Warranty period

The warranty period for the type FM/1 chamfering grinder equals:

- A. 12 months,
 - B. 250,000 machine workpieces or
 - C. 2,500 hours of operation,
- whichever occurs first.

The warranty period commences with the date of delivery of the machine. Performances under this warranty neither lead to an extension of the warranty period nor do they trigger a new warranty period. The warranty period for installed replacement parts ends with the warranty period for the entire machine.

13.3 3. Warranty claims

- A. If defects arise during the warranty period, the corresponding warranty claims must be asserted as soon as possible, at the latest within seven days.
- B. Externally evident transport damage must be reported to the carrier and to us as soon as possible. Damage which is not externally evident must be reported to the carrier and to us in writing as soon as it is discovered, but not later than seven days after delivery.

13.4 4. Exclusion of warranty

All warranty rights are excluded in the following cases in particular:

- A. If the machine has been damaged or destroyed by Acts of God or ambient influences (moisture, electric shocks, dust, etc.);
- B. If the machine has been stored or operated under conditions not conforming to the technical specifications;
- C. If the damage has been caused by incorrect operation – particularly non-compliance with the User Manual;
- D. If the machine has been repaired or modified by persons not specifically authorized by us;
- E. If the warranty claim has not been reported as required by section 3.1.

13.5 5. Operator errors

We reserve the right to charge the resultant test and repair costs to the purchaser if it is found that the reported malfunction has been caused by operation on the wrong mains voltage or by operator errors.

13.6 6. Supplementary warranty provisions

- A. Legal relations between the purchaser and our company are definitively governed by the above provisions. This warranty does not justify any further rights, particularly the right to rescission of the sale or reduction in price. Claims for damages are excluded, regardless of their legal foundation. This shall not apply insofar as liability is mandatory, for instance in cases of personal injury or damage to privately used property under the terms of the law on product liability or in cases of wilful intent or gross negligence. Claims for lost profit and claims based on direct or consequential loss shall be excluded.
- B. The warranty only applies to the initial purchaser and is not transferable.
- C. Place of jurisdiction shall be Ulm if the purchaser is a full trader. If the purchaser does not have any general place of jurisdiction in the Federal Republic of Germany or moves his domicile or ordinary place of residence abroad after conclusion of the contract, place of jurisdiction shall be at our company domicile. This shall also apply if the purchaser's domicile or ordinary place of residence is unknown at the time of filing suit.
- D. The laws of the Federal Republic of Germany shall prevail. The UN Convention on the International Sale of Goods shall not apply in relations between the purchaser and our company.

14 Additional information

Do not hesitate to contact us if you have any queries or wishes.

Our company address:

Häberle
Feinmechanik CNC-Technik oHG
Hinter Alenberg 16
D - 89150 Laichingen

Our central customer service:

Tel.: 0049-7333-5077
Fax: 0049-7333-5476

You can also visit us in the Internet at:

<http://www.haeberle.com/fm1>

or send us an e-mail:

fm1@haeberle.com

The following tips may help you to draw even greater benefit from your machine:

- A. Adjust the grinding feed in accordance with the amount of material removed.
- B. Keep such wear parts as the pressure roller, grinding wheel and drum locating pins in stock.
- C. Clean the drums as described in this User Manual.